CLAIMS

1. A polarizer: comprising a polyvinyl alcohol-based film which is at least dyed with at least iodine and uniaxially stretched,

5 having a single transmittance of 43% or more, a polarizing efficiency of 99.9% or more, and

a dichroic ratio of 30 or more, wherein the dichroic ratio is calculated from a parallel transmittance (Tp) and a crossed transmittance (Tc) at a wavelength of 440 nm according to the

10 following formula:

dichroic ratio=$\{\log_{10}(1/k_2)\}/\{\log_{10}(1/k_1)\}$, where

k_1=$1/2 \cdot \sqrt{2 \times [(Tp+Tc)^{1/2}+(Tp-Tc)^{1/2}]}$ and

k_2=$1/2 \cdot \sqrt{2 \times [(Tp+Tc)^{1/2}-(Tp-Tc)^{1/2}]}$.

15 2. The polarizer according to Claim 1, wherein an iodine content is of 1.5 to 2.5% by weight and a potassium content is of 0.2 to 0.6% by weight.

3. A method of manufacturing polarizer, comprising the

20 steps of:

dyeing a polyvinyl alcohol-based film with iodine;

uniaxially stretching the iodine-dyed polyvinyl alcohol-based film in an aqueous boric acid solution containing an iodide at a concentration of 4% by weight or more; and

25 subsequently washing the film with an aqueous solution containing an iodide at a concentration of 0.8% by weight or more.

4. The method of manufacturing polarizer according to Claim 3, wherein the aqueous boric acid solution contains the

30 iodide at a concentration of 4 to 12% by weight in the uniaxially

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stretching step.

5.   The method of manufacturing a polarizer according to Claim 3 or 4, wherein the aqueous iodide solution contains the iodide at a concentration of 0.8 to 2.5% by weight in the washing step.

6.   The method of manufacturing polarizer according to any one of Claims 3 to 5, further comprising the step of drying the film at a temperature of 70°C or lower after the step of washing with the aqueous iodide solution.

7.   The method of manufacturing polarizer according to any one of Claims 3 to 6, wherein the iodide is potassium iodide.

8.   The method of manufacturing polarizer according to any one of Claims 3 to 7, wherein the iodine dyeing step is performed together with the stretching step.

9.   The method of manufacturing polarizer according to any one of Claims 3 to 8, wherein

the resulting polarizer has a single transmittance of 43% or more, a polarizing efficiency of 99.9% or more ,and

a dichroic ratio of 30 or more, wherein the dichroic ratio is calculated from a parallel transmittance (Tp) and a crossed transmittance (Tc) at a wavelength of 440 nm according to the following formula:

dichroic ratio$=\{\log_{10}(1/k_2)\}/\{\log_{10}(1/k_1)\}$, where

$k_1 = 1/2 \cdot \sqrt{2} \times [(Tp+Tc)^{1/2} + (Tp-Tc)^{1/2}]$ and

$k_2 = 1/2 \cdot \sqrt{2} \times [(Tp+Tc)^{1/2} - (Tp-Tc)^{1/2}]$.

10.   The method of manufacturing polarizer according to any one of Claims 3 to 9, wherein the resulting polarizer has an iodine content of 1.5 to 2.5% by weight and a potassium content of

5   0.2 to 0.6% by weight.

11.   A polarizer obtained by the method according to any one of Claims 3 to 10.

10   12.   A polarizing plate, comprising the polarizer according to Claim 1, 2 or 11 and a transparent protective film provided on at least one side of the polarizer.

13.   The polarizing plate according to Claim 12, wherein

15   a single transmittance is of 43% or more, a polarizing efficiency is of 99.9% or more, and

a dichroic ratio is of 30 or more, wherein the dichroic ratio is calculated from a parallel transmittance (Tp) and a crossed transmittance (Tc) at a wavelength of 440 nm according to the

20   following formula:

$$\text{dichroic ratio}=\{\log_{10}(1/k_2)\}/\{\log_{10}(1/k_1)\}, \text{ where}$$
$$k_1=1/2\cdot\sqrt{2}\times[(Tp+Tc)^{1/2}+(Tp-Tc)^{1/2}] \text{ and}$$
$$k_2=1/2\cdot\sqrt{2}\times[(Tp+Tc)^{1/2}-(Tp-Tc)^{1/2}].$$

25   14.   An optical film, comprising the polarizer according to Claim 1, 2 or 11 or the polarizing plate according to Claim 12 or 13 and at least one other optical layer laminated with the polarizer or the polarizing plate.

30   15.   An image display, comprising at least one piece of the

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polarizer according to Claim 1, 2 or 11, the polarizing plate according to Claim 12 or 13, or the optical film according to Claim 14.